

## **A.36 Mason's *Lilaeopsis* (*Lilaeopsis masonii*)**

### **A.36.1 Legal Status**

Mason's *lilaeopsis* (*Lilaeopsis masonii*) is state-listed as rare under the California Native Plant Protection Act (November 1979). It is not listed under the federal or California Endangered Species Acts. Its Heritage Ranking in the California Natural Diversity Database is G3/S3.1 which means that globally (G) and within the state (S) there are either between 21 to 80 viable element occurrences of this species, 3,000 to 10,000 individuals of this species, or 10,000 to 50,000 acres where this species occurs. Its state threat level rank is "very threatened."

The California Native Plant Society (CNPS) List ranking of 1B.1 for Mason's *lilaeopsis* indicates that it is rare, threatened, or endangered in California and elsewhere, and is considered by CNPS to be seriously endangered in California with more than 80 percent of occurrences threatened. Plants with a List rank of 1B are considered by the California Native Plant Society to meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the California Fish and Game Code.

### **A.36.2 Species Distribution and Status**

#### ***Range and Status***

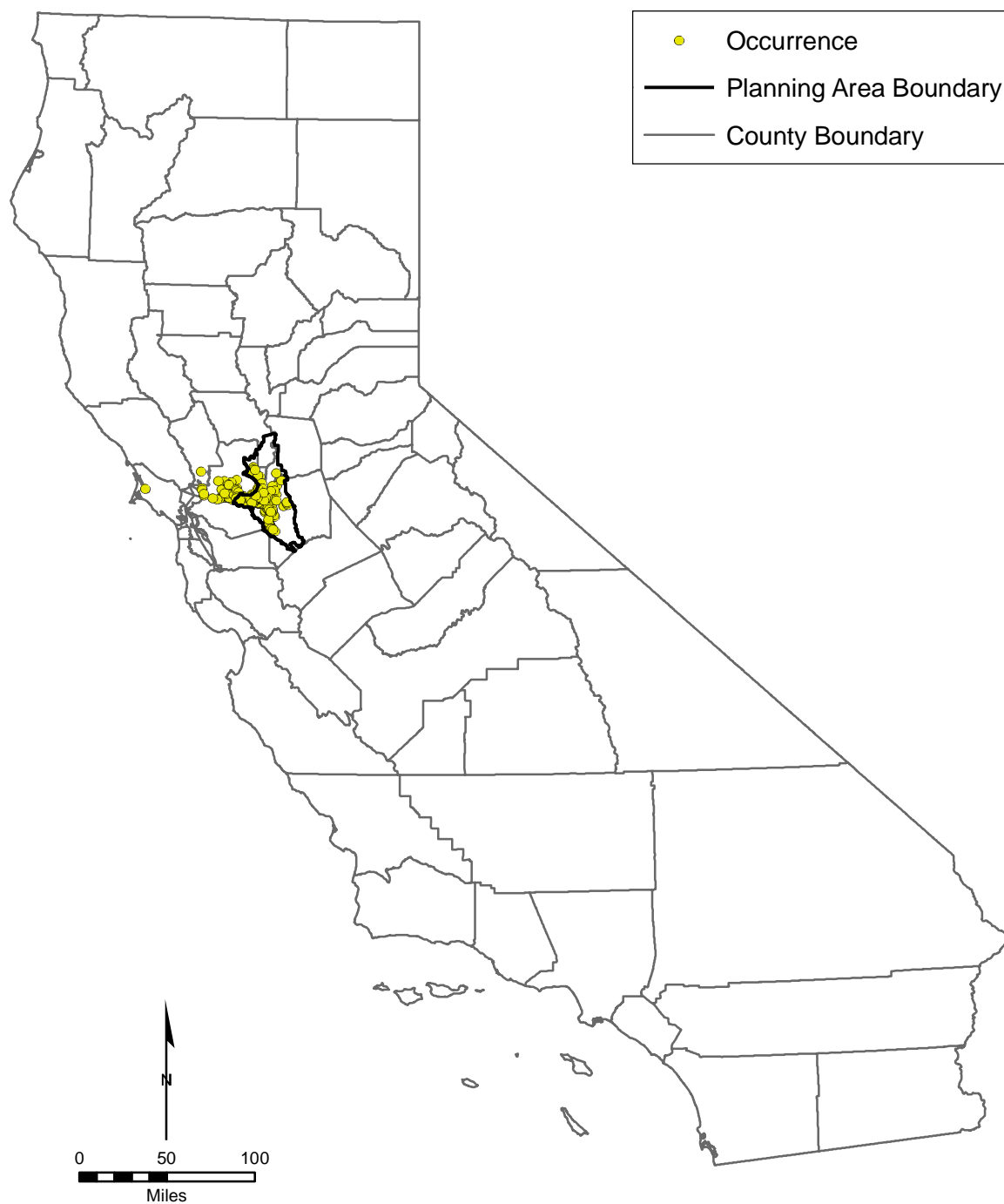
Mason's *lilaeopsis* is endemic to California and its distribution is based on 298 observations (Figure A.36.1) (Calflora 2007). The range of Mason's *lilaeopsis* extends from Napa and Solano counties in the north, to Contra Costa and Alameda counties in the south, to Marin County in the west, and Sacramento and San Joaquin counties in the east (CNDDDB 2008). Contemporary distribution includes occurrences at Napa Marsh, Suisun Marsh area, Tolay Creek, and San Pablo Bay (Goals Project 2000). Currently it is less common in the Western Sacramento River area (Goals Project 2000).

Although population trends of Mason's *lilaeopsis* have not been documented, this species has been determined to be stable to declining (CNDDDB 2008). According to the CNPS (2008), occurrences of Mason's *lilaeopsis* in California are highly limited and the species is at serious risk throughout its range. Surveys in Solano County found that it had declined because its habitat along the margins of small islands within the sloughs had decreased as the islands shrunk in size (Meisler 2002).

There are some data that indicate that Mason's *lilaeopsis* is indistinguishable from western *lilaeopsis* (*Lilaeopsis occidentalis*) based on morphological characteristics and a preliminary molecular genetic analysis (Fiedler and Zebell 1993).

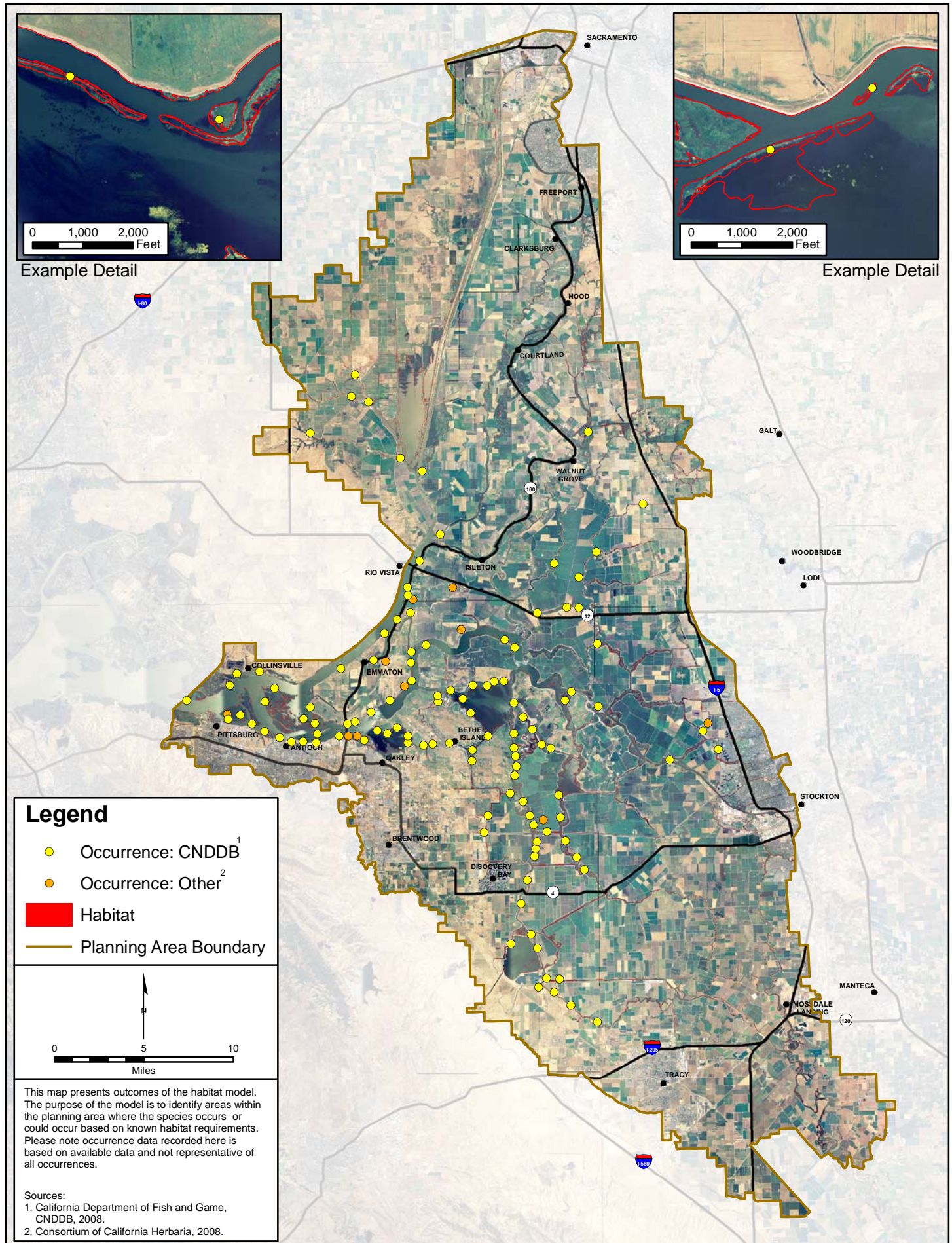
#### ***Distribution and Status in the Planning Area***

Mason's *lilaeopsis* is found throughout the Delta along rivers and sloughs (Figure A.36.2) (CNDDDB 2008; Consortium of California Herbaria 2008). Most occurrences are known from the Central and West Delta. In the South Delta, occurrences are predominately along Old River and Middle River. In the North Delta, it occurs in the Cache Slough Complex and near Delta Meadows.



Source: California Department of Fish and Game, CNDDDB, 2008.  
Consortium of California Herbaria, 2008.

Figure A.36.1. Mason's Lilaeopsis Statewide Recorded Occurrences

Figure A.36.2. Mason's *Lilaeopsis* Habitat Model and Recorded Occurrences



### A.36.3 Habitat Requirements and Special Considerations

Mason's *lilaeopsis* is found in relatively unvegetated areas within brackish or fresh water habitats that are inundated by waves or tides such as estuarine wetlands and immediately below the banks of tidal sloughs, rivers, and creeks (Golden and Fiedler 1991; Fiedler and Zebell 1993; DFG 2000; CNPS 2008). It is a colonizing species that establishes on newly deposited or exposed sediments (CNPS 2008) and has a preference for low tidal flats on clayey or silty soils (Witham and Kareofelas 1994). It is occasionally found distributed among rip-rap lining levees (Golden and Fiedler 1991) and along the edges of tule marshes (Witham and Kareofelas 1994, May & Associates 2005). Plants have been found in areas with high soil salinity, but those sites might not be optimum habitat (Fiedler and Zebell 1993). Within the Delta, Mason's *lilaeopsis* is not found upstream of the extent of active tidal fluctuation (B. Grewell, per. obs. as cited in Suisun Ecological Workgroup 1997).

Some of the species commonly associated with Mason's *lilaeopsis* in the Sacramento Delta include California tule (*Scirpus californicus*), whorled marsh pennywort (*Hydrocotyle verticillata*), and annual tule (*Scirpus cernuus*) (Golden and Fiedler 1991). In the sloughs that radiate westward into Solano County at the southern end of the Sacramento River Deep Ship Channel, it grows in a narrow band between the mudflats and mesic terrestrial vegetation (Meisler 2002). In Suisun Marsh and other places, it commonly occurs with California tule (*Scirpus californicus*), annual tule (*Scirpus cernuus*), and three-ribbed arrowgrass (*Triglochin striata*) are predominantly associated with Mason's *lilaeopsis* (B. Grewell per. comm. as cited in Suisun Ecological Workgroup 1997, May & Associates 2005, CNDDDB 2008). Mason's *lilaeopsis* does not appear to be substrate specific as it is found in organic mucks, silty clays, and even pure sand throughout its range (Golden and Fiedler 1991).

### A.36.4 Life History

Mason's *lilaeopsis* is a small 1.5- to 7.5-cm perennial, rhizomatous herb with tufted linear or thread-like jointed leaves and a member of the carrot family (Apiaceae) (Hickman 1993; DFG 2000). The inflorescences consist of few to several-flowered umbels of tiny white or maroon flowers (Hickman 1993, CNPS 2008), and they bloom from April to November (CNPS 2008). Mason's *lilaeopsis* primarily reproduces vegetatively by creeping rhizomes or by being dislodged and floating to new sites. Because it is a rhizomatous plant, the number of individuals in a population is difficult to determine. Population size is therefore often expressed as "several colonies" or as an "area." Reported colony sizes range from 5 m<sup>2</sup> to 700 m<sup>2</sup> (CNDDDB 2008).

### A.36.5 Threats and Stressors

Fishing and hunting access pose a threat to this species due to trampling effects (Witham and Kareofelas 1994).

**Reduced habitat.** The primary threat to Mason's *lilaeopsis* is the loss of marsh and floodplain habitat. There are numerous processes and activities that threaten this habitat including erosion, channel stabilization, levee maintenance and construction, flood-control improvements, dredging, dumping spoils, agriculture, recreation, water quality changes (CNPS 2008; CNDDDB 2008). A long-term threat is the stabilization of banks and mudflats due to highly regulated water flow regimes, which can cause floodplain habitat to be less dynamic (Fiedler and Zebell 1993).

**Non-native species.** Successional changes in marsh vegetation to more dense vegetation types or to types that could grow in the intertidal area could pose an additional threat (CNPS 2008). One example of this type of threat is the invasion of some areas by non-native water hyacinth (*Eichhornia crassipes*) (Zebell and Fiedler 1996, CNDDDB 2008, CNPS 2008). Additionally, diked salt marshes generally lack rare tidal marsh species. It is believed that the conditions brought about by dikes favor robust generalist species that can better tolerate the extremes of inundation and dryness in diked wetlands (Goals Project 2000).

**Exposure to toxics.** Petroleum product spills could have a significant impact on tidal flat biota, and non-biodegradable litter such as plastics could collect near the tidal drift line, inhibiting plant establishment and growth (Witham and Kareofelas 1994).

### A.36.6 Relevant Conservation Efforts

Mason's *lilaeopsis* is found in a range of protected and unprotected sites (Fiedler and Zebell 1993, Witham and Kareofelas 1994, Zebell and Fiedler 1996, CNDDDB 2008).

The CALFED Bay-Delta Ecosystem Restoration Program Plan's Multi-Species Conservation Strategy designates the Mason's *lilaeopsis* as "Recovery" (CALFED Bay-Delta Program 2000). This means that CALFED has established a goal to recover the species. Recovery is equivalent to the requirements of delisting a species under federal and State ESAs.

Mason's *lilaeopsis* is a covered species under the approved San Joaquin County Habitat Conservation Plan (HCP). It is proposed for coverage under the Solano County HCP.

### A.36.7 Species Habitat Suitability Model

**Habitat.** Mason's *lilaeopsis* habitat is identified as areas within 10 feet on either side of the landward boundary of Tidal Perennial Aquatic land cover type. Vegetation types designated as species habitat in this model correspond to the mapped vegetation associations in the BDCP GIS vegetation data layer. For this species, the golf course, artificial lake, and boat docks of Discovery Bay represented a significant misclassification of land cover by DFG and were deleted from the GIS vegetation data layer.

**Assumptions.** Historical and current records of this species indicate that its distribution extends almost throughout the BDCP Planning Area having been observed in tidally influenced waters from Liberty Island southward and from the area of the Clifton Court Forebay northwards (Figure A.36.2) (Golden and Fiedler 1991, Fiedler and Zebell 1993, Witham and Kareofelas 1994, Zebell and Fiedler 1996, Suisun Ecological Workgroup 1997, Goals Project 2000, Meisler 2002, May & Associates 2005, CNDDDB 2008). While there are no occurrences within the BDCP Planning Area north of Liberty Island or significantly south of the Old River channel near the Clifton Court Forebay, patches of suitable habitat extend beyond those areas. For purposes of this model, a 10 foot-wide buffer on each side of the landward edge of the Tidal Perennial Aquatic land cover type (20 foot combined width) is included as the potential extent of tidal mudflat habitat that supports the Mason's *lilaeopsis*. Within the BDCP Planning Area this species' primary habitat is tidally inundated bare areas of clay or clay loam substrate that is located on the outer margin of wave-cut beaches, or eroding earthen levees, or on the flats immediately below wave-cut beaches and eroding levees (Witham and Kareofelas 1994, Zebell and Fiedler 1996). This substrate defined habitat has not been mapped separately, but it generally occurs in close association with the Tidal Perennial Aquatic land cover type. Therefore, the habitat model uses the buffered landward boundary of Tidal Perennial Aquatic

land cover type as a surrogate for identifying tidal mudflats that support this species' habitat. Mason's *lilaeopsis* is also found in a range of less suitable habitats that include the spaces between riprap on armored banks and levees which also occur in close association with the Tidal Perennial Aquatic landcover type (Zebell and Fiedler 1996).

### A.36.8 Recovery Goals

A recovery plan has not been prepared for this species and no recovery goals have been established.

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